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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,322	06/13/2001	Walter H. Runkis		5476

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Walter H. Runkis
P.O. BOX 593
botsford, CT 06404

EXAMINER

CLARDY, S

ART UNIT PAPER NUMBER

1617

DATE MAILED: 09/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/880,322	Applicant(s) RUNKIS, WALTER H.	
	Examiner S. Mark Clardy	Art Unit 1617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/26/05</u> . | 6) <input type="checkbox"/> Other: _____ |

g-o-r

New claims 27-41 are pending in this application which has also been filed as international application PCT/US02/18367. In response to the previous action reopening prosecution after the appeal brief had been filed, applicant appears to have requested to have the option of reinstating the appeal, in accordance with MPEP 1208.02 and form paragraph 12.81 (i.e., 12.187). Inasmuch as applicant has amended the claims, it would appear that the option of reinstating the appeal at this point is moot.

As drafted, applicant's claims are drawn to:

1. Fertilizer or nutrient correcting compositions (claims 32-36) comprising two compounds:
 - a) a sulfamic acid moiety
 - b) a substantially water insoluble compound with macronutrient¹ and/or micronutrient² components which are chemically reacted to form water solution stable products.
2. Methods using the composition to treat nutrient systems which have been determined to be deficient in specific nutrients for supporting "living cells" (claims 27-31). While the cells may be plant, animal, or "living", i.e., any kind of cell whether prokaryote, eukaryote, etc. (p. 15), the disclosure is directed toward plant nutrient systems, inasmuch as the terminology used herein (e.g., "macronutrient" and "micronutrient") are used exclusively in the plant fertilizer art.
3. Methods of making the compositions in order to correct nutrient deficiencies which have been determined to exist in a nutrient system (claims 37-41).

Applicant has confirmed in the response filed April 26, 2005, that the reaction disclosed herein does, in fact, proceed spontaneously; no essential method steps have been omitted. Thus the rejection under 35 USC 112, first paragraph is withdrawn. Applicant has combined fertilizer

¹Applicant includes both the conventional primary nutrients, NPK, and secondary nutrients, Ca, S, and Mg.

²Fe, Mn, B, Zn, Cu, Mo, Cl, Na (for halites), Co, Ni

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and sulfamic acid components and a chemical reaction has proceeded spontaneously. Again, it would necessarily follow that this reaction would occur whenever these components are mixed.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 27, 32, 37, and those dependent thereon are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 27, applicant's invention appears to be claimed in such a way that it comprises forming a composition comprising two different, and unreacted, compounds: sulfamic acid, and any water insoluble second compound. Further, stating that the composition may "include" macro/micronutrient compounds which are chemically reacted does not appear to accurately describe applicant's invention; it indicates that any conceivable compound may be used. A better wording for the (ii) section may be, for example:

"(ii) forming [an aqueous] composition comprising the reaction product of sulfamic acid and a second reactant selected from the group consisting of substantially water insoluble macronutrient and/or micronutrient compounds which react with the sulfamic acid to form water solution-stable products in concentration or concentrations sufficient to correct said deficiencies; and,"

In claim 32, a similar problem exists in the (i) section (aside from the fact that "(i)" is not needed here). This section could be worded as follows:

"the reaction product of sulfamic acid and at least one other compound selected from the group consisting of macronutrient and/or micronutrient compounds which contain calcium and/or magnesium and which react with the sulfamic acid in proportions sufficient to form water solution-stable macronutrient and/or micronutrient products in concentration or concentrations sufficient to correct said deficiencies after said deficiencies have been determined."

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In claim 37, “(ii)” section, as well, the wording is indefinite in using the term “including”. The following replacement is suggested:

“(ii) reacting a water soluble sulfamic acid compound with a substantially water insoluble second compound selected from the group consisting of macronutrient and/or micronutrient compounds, at respective pre-selected concentrations sufficient to correct said deficiencies; and,”

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 27, 28, 31-33, 36-38, and 41 are rejected under 35 U.S.C. 102(a), (b), and (e) as being anticipated by Woodhouse (US 2,237,826).

Woodhouse, again, teaches the addition of sulfamic acid or salts thereof to aqueous fertilizer compositions comprising ammonium, phosphate, and other conventional fertilizer materials. Fertilizer components may comprise calcium, magnesium, sulfate, phosphate, potassium (potash), ammonium, and nitrate species (columns 2-3). Again, it is irrelevant why Woodhouse combined fertilizer and sulfamic acid components. The fact remains that they were combined,

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thus the instant invention is anticipated. The physical characteristic of the compounds which would result from the combination of compounds which applicant has stated will spontaneously react, would necessarily be present. Woodhouse further discloses the utility of making fertilizer compositions which possess a desirable proportion of ingredients, necessarily in response to some predetermined need (or “deficiency”) which exists in the plant or soil to which the fertilizer is to be applied (p. 2, left column, lines 24-36). Note that it is a conventional practice in the fertilizer art to determine what is needed prior to applying fertilizer; otherwise the applied composition may be inappropriate, or of the wrong concentration.

Claims 32-36 are rejected under 35 U.S.C. 102(a) and (b) as being anticipated by Kirk-Othmer³.

Kirk-Othmer, again, teaches that “sulfamic acid readily forms various metal sulfamates by reaction with the metal or the respective carbonates, oxides, or hydroxides” (p. 122), and exemplary reactions are provided for sulfamic acid with zinc (metal), calcium carbonate, iron (II) oxide, and nickel (II) hydroxide. On p. 124, it is disclosed that “primary, secondary, and tertiary amines react with sulfamic acid to form ammonium salts.” Finally, “sulfamates are formed readily by the reaction of sulfamic acid and the appropriate metal or its oxide, hydroxide, or carbonate... Sulfamates prepared from weak bases form acidic solutions, whereas those prepared from strong bases produce neutral solutions... Inorganic sulfamates are quite water soluble, except for the basic mercury salt.” Relative solubilities are provided for various sulfamates, including ammonium, sodium, magnesium calcium and zinc (p. 125). Regarding “plant growth promoting amounts” in the claims, it is noted that any concentration of known plant nutrients

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would provide a “plant growth promoting amount”, and that any amount of water in such compositions would similarly be a “plant growth promoting amount”. Further, deficiency correcting amounts depend as much on application rates, as on composition concentrations which are typically much more concentrated than required, unless provided in a “ready to use” form.

Claims 32 and 34-36 are rejected under 35 U.S.C. 102(a), (b), and (e) as being anticipated by Fischer (US 3,321,273).

Fischer teaches the methods of making metal sulfamate compositions by reacting metals (Ni, Co, Fe, Pb, Cu, Cd, Zn, Al) with sulfamic acid (col 1, lines 35, through col 2, line 5). Several of the listed metals are known micronutrients for plants; it is irrelevant whether the references disclose them as such. Again, any amount of a plant growth material is seen as a plant growth promoting amount, especially in view of the fact that such micronutrients are useful in trace amounts. And as noted above, deficiency correcting amounts depend as much on application rates, as on composition concentrations which are typically much more concentrated than required, unless provided in a “ready to use” form.

Claims 32 and 34 are rejected under 35 U.S.C. 102(a), (b), and (e) as being anticipated by Shibe et al (US 3,344,018).

Shibe et al, again, teach biocidal quaternary ammonium compositions comprising the reaction product of quaternary ammonium compounds such as alkyl quaternaries (col 1, lines 19-50) and an organic sulfamate (col 2, lines 8-14). Any amounts of the sulfamate reaction products would be seen as having plant growth promoting properties.

³ Kirk-Othmer. *Encyclopedia of Chemical Technology*, 4th ed., vol 23. “Sulfamic acid and sulfamates”, p. 120-133. 1997.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 27-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Woodhouse (US 2,237,826) and Kirk Othmer, both of which have been discussed above.

Again, one of ordinary skill in the art would be motivated to combine these references because Woodhouse discloses fertilizer compositions comprising the reaction product of fertilizer compounds with sulfamic acid, the properties and synthesis of which are taught in Kirk-Othmer.

Thus, again, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to have combined applicant's fertilizer components with sulfamic acid because Woodhouse teaches that such compositions are useful as fertilizers. Kirk-Othmer teaches that such compounds may be made by the addition of sulfamic acid or derivatives thereof, to metals or their carbonates, oxides, or hydroxides. Using the resultant materials to provide nutrients to plants is also seen as treating plant cells. Again, it is a conventional practice in the fertilizer art to determine what is needed prior to applying fertilizer; otherwise the applied composition may be inappropriate, or of the wrong concentration.

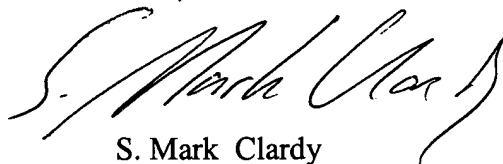
No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Mark Clardy whose telephone number is 571-272-0611. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreenivasan Padmanabhan can be reached on 571-272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "S. Mark Clardy". The signature is fluid and cursive, with a large initial "S" and a stylized "C" at the end.

S. Mark Clardy
Primary Examiner
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September 2, 2005